

# UBS Investment Research

## Tanganyika Oil Company Ltd

### Steaming ahead

#### ■ A niche player with large heavy oil resources

TYK is a niche E&P company focusing on international heavy oil production. The company's principal asset is a 100% operated working interest in three large proven heavy oil fields in Syria. Management brings a wealth of experience in both heavy oil development and int'l operations. TYK is applying cyclic steam stimulation to improve well productivity and reserve recovery in Syria.

#### ■ 3P reserves of 1.05 billion barrels

TYK has several years of development inventory. With independently assessed 3P reserves of 1.05 billion bbls, production could reach 230,000 bbl/d by 2013. Future output will depend heavily on the success of EOR activities rather than exploration success, as the resource base is very well defined.

#### ■ NAVPS of C\$45 (risk-adjusted) and C\$88 (unadjusted)

Using a long-term oil price of \$51/bbl WTI, we have calculated a NAV per share of C\$45.15 and C\$87.75 on risk-adjusted and unadjusted bases. In comparison to the current share price, we see significant upside. The key catalysts that we believe will drive a re-rating are appraisal well results from 6 rigs and data from the steam injection pilot projects in Syria.

#### ■ Valuation: Buy 2 and C\$30 price target

We are initiating coverage of TYK with a Buy 2 rating and C\$30 price target, which is based on 0.66x our risk-adjusted base case NAV estimate.

Highlights (US\$m)	12/05	12/06	12/07E	12/08E	12/09E
EBITDX	2	4	80	252	646
DACF	4	5	81	253	647
CFPS (UBS, US\$)	0.09	0.10	1.44	4.37	10.98
EPS (UBS, US\$)	0.02	(0.15)	1.16	3.66	8.83
Profitability & Valuation	5-yr hist. av.	12/06	12/07E	12/08E	12/09E
Prod per share growth %	-	-	77.4	137.5	148.5
ROACE %	-	16.1	36.9	41.0	26.7
EV/EBITDX x	-	>100	12.2	5.2	2.0
EV/DACF x	-	80.2	12.0	5.1	2.0
P/CFPS (UBS) x	-	>100	12.0	4.0	1.6

Source: Company accounts, Thomson Financial, UBS estimates. (UBS) valuations are stated before goodwill-related charges and other adjustments for abnormal and economic items at the analysts' judgement.

Valuations: based on an average share price that year, (E): based on a share price of C\$20.00 on 03 Apr 2007 19:35 EDT

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## Global Equity Research

Americas

Oil Companies, Secondary

Rating **Buy 2\***  
*Prior: Not Rated*

Price target **C\$30.00/US\$25.89**  
*Prior: Not Rated*

Price **C\$20.00/US\$17.26**

RIC: TYK.V BBG: TYK CN

4 April 2007

#### Trading data (local/US\$)

52-wk. range	C\$21.86-10.01/US\$18.68-8.98
Market cap.	C\$1.11bn/US\$0.96bn
Shares o/s	55.7m (COM)
Free float	68%
Avg. daily volume ('000)	9
Avg. daily value (C\$m)	0.2

#### Balance sheet data 12/07E

Shareholders' equity	US\$0.27bn
P/BV (UBS)	-
Net cash (debt)	(US\$0.01bn)

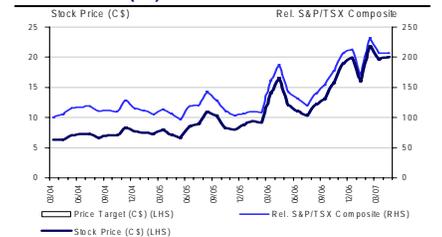
#### Forecast returns

Forecast price appreciation	+50.0%
Forecast dividend yield	0.0%
Forecast stock return	+50.0%
Market return assumption	9.2%
Forecast excess return	+40.8%

#### CFPS (US\$)

	12/07E		12/06 Actual
	From	To	
Q1E	-	0.16	0.04
Q2E	-	0.27	(0.05)
Q3E	-	0.43	(0.04)
Q4E	-	0.58	0.14
12/07E	-	1.44	-
12/08E	-	4.37	-

#### Performance (C\$)



Source: UBS

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### ANALYST CERTIFICATION AND REQUIRED DISCLOSURES BEGIN ON PAGE 27

#### \*Exception to core rating bands; See page 28

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## Summary and Investment Case

Tanganyika Oil (TYK) is a niche E&P company focusing on heavy oil production in Syria and Egypt. The management and board bring a wealth of experience in both heavy oil development and international operations. The company's principal asset is a 100% operated working interest in three large proven heavy oil fields in Syria. TYK is applying Cyclic Steam Stimulation to improve well productivity and reserve recovery.

**Niche E&P focused on Syrian heavy oil using EOR techniques**

Oil production in Syria is in steep decline, and future output from the country will be largely dependent on the success of Enhanced Oil Recovery (EOR) projects, such as those of Tanganyika.

TYK has several years of development inventory. With independently assessed 3P reserves of 1.05 billion barrels, company production could reach 230,000 bbl/d by 2013 vs the current level of about 7,000 bbl/d. Future output will very much depend on the success of EOR activities rather than exploration success, as the company's resource base is very well defined. That said, a very active 2007 drilling program could prove up further resources. The company will use 6 rigs to drill a planned 111 wells in 2007, including 18 in Egypt and 93 in Syria.

**3P reserves of 1.05 billion barrels and potential production of 230,000 bbl/d by 2013**

TYK's Syrian assets are supported by a well developed infrastructure base that poses no capacity constraints. In addition, TYK has free access to 1 Tcf of proven natural gas to use in generating steam for the EOR projects.

The stock is deeply undervalued, in our view. On a risk-adjusted basis, we estimate a NAV of C\$45.15 per share. The current significant discount from NAV is likely due to a lack of data on the performance of the EOR pilot program. The pilot steam injection project (4 wells) at the Tishrine field has increased well productivity (recovery and flow rates), on average, by 2.3 times. We believe that as further production performance data from the pilot project is revealed, the market will recognize the value of the company's vast resource base. TYK currently trades at C\$9.59/bbl of 2P reserves.

**Deeply undervalued as the market remains cautious to extrapolate the success of the thermal pilot project over the entire resource base**

We are initiating coverage of Tanganyika with a Buy 2 rating and a 12-month price target of C\$30. Our target is based on 66% of our risk-adjusted NAVPS estimate of C\$45.15.

**Buy 2, C\$30 price target**

### Valuation

Using a long-term oil price of \$51/bbl WTI, we calculate a NAV per share of C\$45.15 on a risk-adjusted basis, and C\$87.75 on a non-adjusted basis. Compared to the current share price of C\$20, we see significant upside given TYK's resources are well defined by recent well results and new 3D seismic mapping. In our view, the real driver for the stock will be the ongoing performance of the EOR pilot project, which has so far exceeded management's expectation.

**Riskd NAV of C\$45.15/share, C\$87.75 on an unrisksd basis**

Table 1: Tanganyika Oil—NAV estimate

	Reserves / Resources		Entitle- ment	NPV/boe @10% AT	Chance of success	UNRISKED		RISKED	
	Gross WI	Net WI				NPV	Per Share	NPV	Per Share
	(MMbbls)	(MMbbls)				(A-tax)	(A-tax)	(A-tax)	(A-tax)
<b>Syria</b>									
Proved + Probable	768	416	54%	2.11	100%	1,622	34.00	1,622	34.00
Possible	270	180	67%	2.87	25%	776	16.26	194	4.07
Resources (3)	644	322	50%	2.50	10%	1,611	33.76	161	3.38
<b>Total</b>	<b>1,682</b>	<b>919</b>	<b>55%</b>	<b>3.57</b>		<b>4,009</b>	<b>84.02</b>	<b>1,977</b>	<b>41.44</b>
<b>Egypt</b>									
Proved + Probable	11	6	51%	7.40	100%	81	1.70	81	1.70
Possible	0	0	51%	3.33	25%	1	0.02	0	0.01
Resources	-	-	-	-	10%	-	-	-	-
<b>Total</b>	<b>11</b>	<b>6</b>	<b>51%</b>	<b>7.29</b>		<b>82</b>	<b>1.72</b>	<b>81</b>	<b>1.70</b>
<b>Working capital (net of all debts)</b>						<b>96</b>	<b>2.01</b>	<b>96</b>	<b>2.01</b>
<b>NAV / NAVPS</b>						<b>4,187</b>	<b>87.75</b>	<b>2,154</b>	<b>45.15</b>

(1) Using company's independently assessed 2006 YE reserves  
(2) Chance of success includes the probability of technical, execution, and commercial  
(3) Assuming 5% recovery rate and 50% entitlement

Source: UBS and company reports

On several reserve and production metrics, Tanganyika appears to be the cheapest stock in our coverage universe. TYK currently trades at:

- 44% of our risk-adjusted NAV estimate, representing a significant discount from the peer group average of 94%.
- C\$9.59/bbl and C\$8.98/bbl of 2P and 3P (including recoverable resources) reserves versus its peer group average of C\$26.17/bbl and C\$10.46/bbl, respectively.

Significant discount to peers both as a proportion of NAV and per barrel of reserves

Table 2: Valuation comparison

	Rating	Target	Recoverable (working interest)			Oil & Liquids	PV / boe YE06 (10%-AT)	Valuation (before future capex)		Valuation (after future capex)		P / NAV 10% Atax
			EV	2P	3P + Rsc			EV/2P	EV/3P	EV/2P	EV/3P	
			(C\$MM)	(MMboe)	(MMboe)			(C\$/boe)	(C\$/boe)	(C\$/boe)	(C\$/boe)	
CVI	Buy 2	10.00	514	18	131	100%	8.62	29.03	3.92	35.51	10.41	71%
NKO	Neutral 2	87.00	2,317	209	860	0%	4.46	11.06	2.70	13.03	4.66	134%
AXC	Buy 2	41.00	7,518	354	662	100%	11.00	21.26	11.36	27.52	17.62	124%
TGL	Buy 2	US\$7.00	300	12	48	77%	7.93	25.77	6.29	28.62	9.14	47%
<b>Average</b>				148	425			21.78	6.07	26.17	10.46	94%
<b>TYK</b>	Buy 2	30.00	1,007	779	1,465	100%	3.58	1.29	0.69	9.59	8.98	44%

Note: Our PT for CVI is based on 1.05x our risk-adjusted NAVPS of \$9.55. Our PT for NKO is based on an average of our risk-based case and unrisks NAV estimate. Our PT for AXC is based on 5.2x our 2008e EV/DACF estimate. Our PT for TGL is based on 1.0x our risk-adjusted potential NAV estimate.

Source: UBS

In our view, TYK's very low valuation is attributable to several issues, not the least of which is the market's lack of knowledge because of thin coverage by sell-side analysts. The stock is also extremely illiquid, possibly deterring a number of potential investors. From an operational perspective, the market is awaiting further data on the performance of the EOR pilot project and ongoing work-over stimulation of mature wells, which would minimize some of the risk associated with the resources.

Lack of liquidity, thin research coverage and reluctance to buy in to EOR results are the main reasons for the low valuation

The EOR project (Cyclic Steam Stimulation) results from 5 wells (2 at Oudeh and 3 at West Tishrine) have exceeded management's expectation, increasing average production per well by 2.3 times (from 120 bbl/d to 276 bbl/d). In addition, work-overs (Acidizing, liner removal, etc) on 4 wells from the West Tishrine field have been very encouraging, on average increasing production per well 3.4 times to 893 bbl/d from 259 bbl/d.

## Growth profile

**Significant undeveloped reserves.** At year-end 2006, TYK had independently assessed reserves of 778 MMbbl and 1,050 MMbbl on a 2P and 3P basis, respectively. In our view, the company's share of plateau production in Syria could reach 230,000 bbl/d by 2013. In the medium-term, the company is working on a number of fronts in Syria to increase conventional production from new step-out and infill wells at Tishrine, Oudeh, and Sheikh Mansour.

**Aggressive development plan.** TYK has an aggressive plan to increase production to between 16,000 bbl/d and 19,000 bbl/d by the end of 2007. TYK plans to drill 111 wells in 2007: 18 in Egypt and 93 in Syria, using 6 rigs in Syria alone. The ultimate development of the existing Syrian assets calls for over 1,700 wells.

Targeting production of 16,000 – 19,000 bbl/d by the end of 2007

**Excellent infrastructure in Syria.** There is excellent existing transport and petroleum-related infrastructure in Syria, where the company's assets are located. The company has free access to all existing wells, pipelines, and facilities owned by the Syrian Petroleum Company (SPC). Oil production from both Oudeh and Tishrine will be transported to, and treated at the Tartous export terminal on the Mediterranean coast by way of the Scotraco pipeline, located nearby the company's producing fields. TYK's PSA with the Syrian government provides free access to proven natural gas reserves of ~1 Tcf for the purposes of EOR.

Oil is exported from East Tishrine via two substations and is fed into its main oil gathering station. The oil produced in West Tishrine is gathered from five substations, as well as from East Tishrine's main gathering station, which feed into West Tishrine's main oil gathering station. Oil is transported via two 10.75-inch diameter, 17 kilometre pipelines, from the main gathering station in West Tishrine to the main Roumailan pipeline.

Well established infrastructure in Syria with free access to natural gas for thermal recovery purposes

A 57 km pipeline from the Oudeh field transports the oil to the main pipeline (Scotraco) which pipes the oil onward to the Homs refinery. From there the oil is piped to Tartus export terminal on the Mediterranean coast.

**Flexible balance sheet.** TYK has \$95 million in working capital with no debt. This provides the financial strength to accelerate development of the company's resources should the pilot EOR project continues to yield better than expected results.

## Key risks

**Execution risk.** While geological risk appears to be low, the key unknown is the recovery rate. Initial EOR results are encouraging, but there is still a long way to go. The results from a 5-well cyclic steam stimulation pilot project at the West Tishrine field have, on average, improved production by 130% to 276 bbl/d (from 120 bbl/d). In addition, a 4-well work-over program at the West Tishrine field has improved well productivity by 263% from 259 bbl/d to 890 bbl/d. Since all of the company's reservoirs in Syria are carbonates, we expect reservoir quality to vary across the field, which could have a material impact on the performance of work-over and/or EOR programs. This could have negative or positive implications for the recovery and the economics of the reserves.

**Liquidity risk.** Despite a market cap of nearly \$1 billion, a tremendous resource base and significant production growth, TYK is very thinly traded on the TSX Venture Exchange, averaging 9,000 shares per day over the past 3 months. We believe trading volume will pick up if the company is able to duplicate early EOR results. Also, we expect the company to be promoted to the TSX, helping liquidity and the company's valuation. We estimate a free float of 68%, as there are three significant shareholders, holding 31% of the outstanding shares with the balance attributable to management.

**Dilution risk.** Based on a DeGolyer and MacNaughton engineering report, the estimated capital requirement for development of the stated 2P reserves is approximately \$5.5 billion. Given the country's pressing need to ramp up production in the near term, TYK may lack the technical and financial capability should the government demand an increase in the pace of development. At year-end 2006, the company had working capital of \$95 million compared to a \$186 million 2007 capital program. Hence, we expect TYK to issue additional equity or access the debt-market using its reserves as collateral. TYK could also bring in a potential JV partner to finance the project.

**Country risk.** One of the key factors that may be depressing TYK's valuation is the perceived Syrian geopolitical risk, given the country's rocky relationship with the United States. In May 2004, the U.S. government imposed unilateral economic sanctions against Syria. We note that in the past two decades and since the first license offering to IOCs in 2001, the Syrian government has not cancelled or amended any PSA. Given the country's ageing oil fields (natural

Initial EOR results are encouraging but long-term performance is the key

Liquidity risk is a concern as the stock is thinly traded on the TSX Venture

Significant capital requirement could present dilution risk

Syria, while stable and attractive to IOCs in the past, may be a concern to some investors

decline and technological problems), and lack of capital for re-investment, the government is heavily reliant on foreign technology and capital to revive the sector. Thus, it is our belief that the fiscal and regulatory environment in Syria will remain favourable to IOCs for the foreseeable future.

## Forecasts

Table 3: Financial and operating forecasts

Recommendation & Valuation						
Rating	Buy 2		Methodology	risk-adjusted NAV multiple		
Target (C\$)	30.00		Target multiple	0.66x		
Current share price (C\$)	19.92		Peer avg target multiple	0.90x		
Implied total return	50%		NAV/shr (10% A-T)	45.15		
Market Information						
Market cap (\$MM)	943.9		Shares o/s (basic) (MM)	55.6		
Net cash (debt) (\$MM)	95.7		Shares o/s (fd) (MM)	56.5		
Enterprise value (\$MM)	848.2		Avg daily trading vol (3 months)	9,000		
Production		2006a	2007e	2008e	2009e	2010e
Natural gas	Mcf/d	0	0	0	0	0
Oil & NGLs	bbl/d	<u>5,381</u>	<u>11,130</u>	<u>26,429</u>	<u>65,670</u>	<u>104,435</u>
<b>Total (6:1)</b>	<b>boe/d</b>	<b>5,381</b>	<b>11,130</b>	<b>26,429</b>	<b>65,670</b>	<b>104,435</b>
Natural gas ratio		0%	0%	0%	0%	0%
Production Growth (YoY)			107%	137%	148%	59%
Financials						
Cash flow	\$MM	5.2	81.1	246.6	620.2	781.8
CFPS (fd)	\$/shr	0.10	1.44	4.37	10.98	13.84
Net income	\$MM	(8.2)	65.4	206.4	498.9	513.5
EPS (fd)	\$/shr	(0.17)	1.16	3.66	8.83	9.09
CAPEX	\$MM	(31.3)	(185.9)	(576.4)	(640.8)	(683.0)
Valuation						
EV / DACF		159.8 x	11.7 x	5.1 x	2.0 x	1.5 x
Target EV / DACF		212.9 x	17.9 x	7.0 x	2.8 x	2.1 x
EV / boe/d		157,639	85,460	48,465	19,819	11,516
Target EV / boe/d		210,066	130,219	67,314	27,405	16,286
Capital Structure						
Market capitalization	\$MM	944	942	942	942	942
Net cash (debt) at year-end	\$MM	96	(9)	(339)	(360)	(261)
Enterprise value	\$MM	848	951	1,281	1,301	1,203
Debt/Cash Flow		-18.3 x	0.1 x	1.4 x	0.6 x	0.3 x
Unit Netback Analysis						
Realized Price	\$/boe	49.15	42.90	45.47	43.98	36.21
Royalties, Taxes	\$/boe	31.38	21.65	18.41	17.40	13.53
Operating Costs	\$/boe	<u>19.35</u>	<u>11.57</u>	<u>10.91</u>	<u>9.45</u>	<u>9.48</u>
<b>Field Operating Netback</b>	<b>\$/boe</b>	<b>(1.58)</b>	<b>9.68</b>	<b>16.15</b>	<b>17.12</b>	<b>13.20</b>
Commodity and Forex						
WTI	US\$/bbl	66.04	60.00	64.00	62.00	51.00
Exchange rate	US\$/C\$	0.83	0.86	0.85	0.85	0.85

Source: UBS and company reports

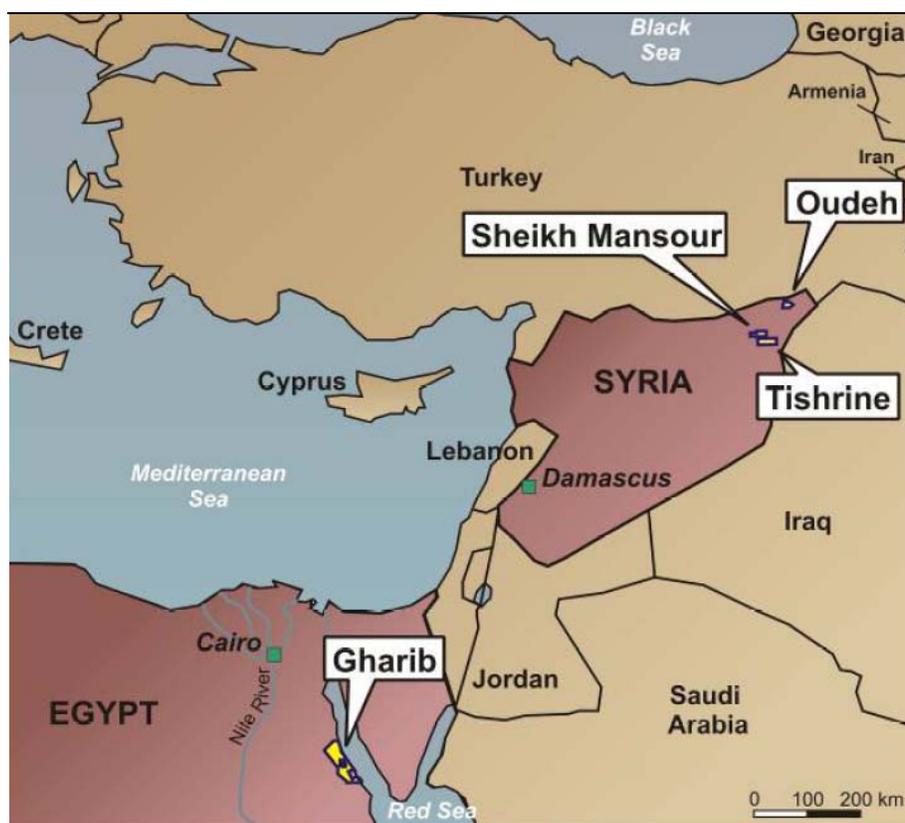
## Company overview

Tanganyika is a pure play E&P, focusing on heavy oil development projects in Egypt and Syria. The company's strategy is to create value by using western technology in the heavy oil fields of the Middle East, where significant resources have been overlooked.

The company's common shares trade on the TSX Venture Exchange under the symbol TYK and the Stockholm Stock Exchange under the symbol TYKS. The company has a market capitalization of \$950 million. TYK had a working capital surplus of \$95 million with no debt at year-end 2006.

Create value by using proven western technology to improve productivity and recovery rates of heavy oil reservoirs

Figure 1: Tanganyika's properties



Source: Company reports

Tanganyika has a 100% working interest and is the operator of two Syrian heavy oil projects with a resource base in excess of 21 billion barrels of oil-in-place. The Oudeh concession is a development lease, encompassing over 47,000 acres. The second development lease is at Tishrine – Sheikh Mansour. In addition, Tanganyika has a 70% working interest and is the operator of the Hana oil field, located in the West Garib concession in Egypt. Outside the Hana field, the company holds a 45% participating interest in the remaining land of the concession, encompassing over 468,750 acres.

100% WI in 2 Syrian heavy oil projects, with a resource base greater than 21 billion bbls OOIP.

TYK is led by an experienced team with extensive international experience, particularly in heavy oil development projects. The technical team applies proven heavy oil technology to mature or somewhat depleted reservoirs in the Middle East with significant remaining resources.

**Table 4: Tanganyika Oil—Management and directors**

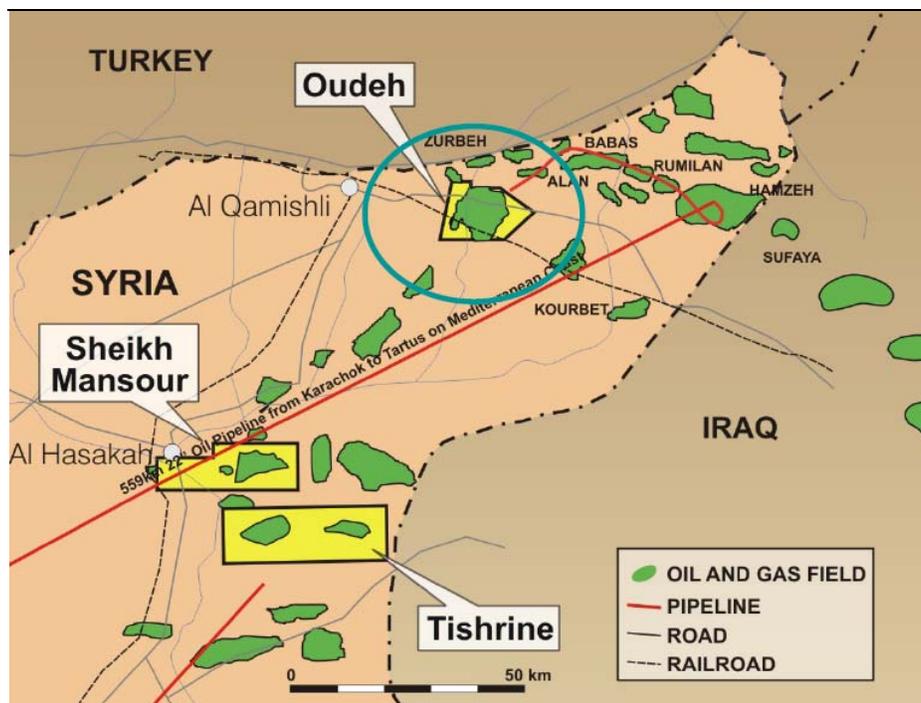
Management Team		Profile
<b>Gary Guidry, President and CEO</b>	A Petroleum Engineer by training, Mr. Guidry was most recently President and CEO of Calpine Natural Gas Trust, which ultimately merged with Viking Energy Royalty Trust. He previously was president of AEC International and held senior management positions with CanOxy/Nexen, Benton Oil and Gas, and Occidental Petroleum where he led projects in Nigeria, Yemen and Ecuador.	
<b>Mamdouh Nagati, Executive VP and GM - Egypt</b>	Mr. Nagati received a B.Sc. (Hon.) in Geology and Chemistry from Cairo University in 1969. Mr. Nagati joined Tanganyika Oil Company Ltd. in 1992 and prior to that, worked for several major oil companies in Egypt and Dubai.	
<b>Gonzalo Ruiz, GM - Syria</b>	Mr. Ruiz is a Registered Professional Engineer. He spent many years at Occidental Petroleum in various senior level positions worldwide including the Middle East. He also has experience with heavy oil operations in remote locations having managed Alberta Energy Company's (now EnCana) operations in Ecuador. Most recently, he was President of a petroleum consultancy working throughout the heavy oil regions of South America.	
<b>Arlene Weatherdon, CFO</b>	Ms. Weatherdon is a Chartered Accountant has an extensive background in the area of finance, having played a key role in taking NAL Oil and Gas Trust public (as CFO). She was also the CFO at S.I. Systems Ltd. and was Audit Manager at Ernst & Young International.	
<b>Directors</b>		
<b>Lukas H. Lundin</b>	Director/senior executive of a number of public resource companies	
<b>Gary Guidry</b>	President & CEO of Tanganyika	
<b>John H. Craig</b>	Lawyer, partner at Cassels Brock & Blackwell LLP	
<b>William M. Rand</b>	President of Rand Investment Corp, director of a several public companies	
<b>Keith Hill</b>	President of Valkyries Petroleum Corp	
<b>Bryan A. Benitz</b>	Self employed businessman, director of several public companies	
<b>Hakan Ehrenblad</b>	Independent businessman, director of Tethys Oil AB	

Source: Company reports

# Properties

## Syria

Figure 2: Tanganyika's Syrian properties



Source: Company reports

Tanganyika has two concessions in Syria with development contracts. The agreements allow TYK to better define the resources and increase the productivity of the existing fields by applying new technologies. The two concessions are:

- Tishrine (19° API) and Sheikh Mansour (10 - 23° API); and,
- Oudeh Feld (14° API).

Oil Quality: 10 - 23° API gravity

The company holds significant resource potential in Syria, but the recovery rate is key. The success of the EOR and work-over pilot program will have a significant impact on the reserve volume that will ultimately be recovered.

Over 1 billion barrels of 3P reserves

Table 5: Tanganyika's reserves in Syria

	OOIP MMbbls	Recovery Factor %	Reserves MMbbls
Proved	4,919	3.5%	170
Proved + Probable	6,441	11.9%	768
Proved + Probable + Possible	7,795	13.3%	1,038

Source: Company reports, UBS

## Tishrine

Tishrine was discovered in 1976 by the Syrian Petroleum Company (SPC). Tanganyika entered into a development and production sharing contract (PSC) covering both fields in November 2004. The PSC included 21 existing wells and had an initial term of 20 years with an option to extend for a further 5 years. Tanganyika is the operator and has a 100% working interest in all incremental production above the base level. The base level was initially set on May 31, 2005 at a rate of 6,525 bbl/d with an assumed decline rate of 5%. The Tishrine block covers 101,000 acres, which includes two fields; Tishrine East and Tishrine West.

Terms of the PSC give TYK the right to incremental oil produced above a base level

The objective of the PSC is to increase oil recovery and crude oil production from the existing producing fields within the block by using 3D seismic-based horizontal drilling and enhanced oil recovery techniques (cyclic steam injection).

The existing contract allows TYK to operate the fields on technical feasibility studies and field trial phases for five years, during which time the plan is to raise gross production to 10,000 bbl/d. Following a five-year trial phase, the company will then enter into a joint venture with the Syrian Petroleum Company (SPC) for an additional 20 years.

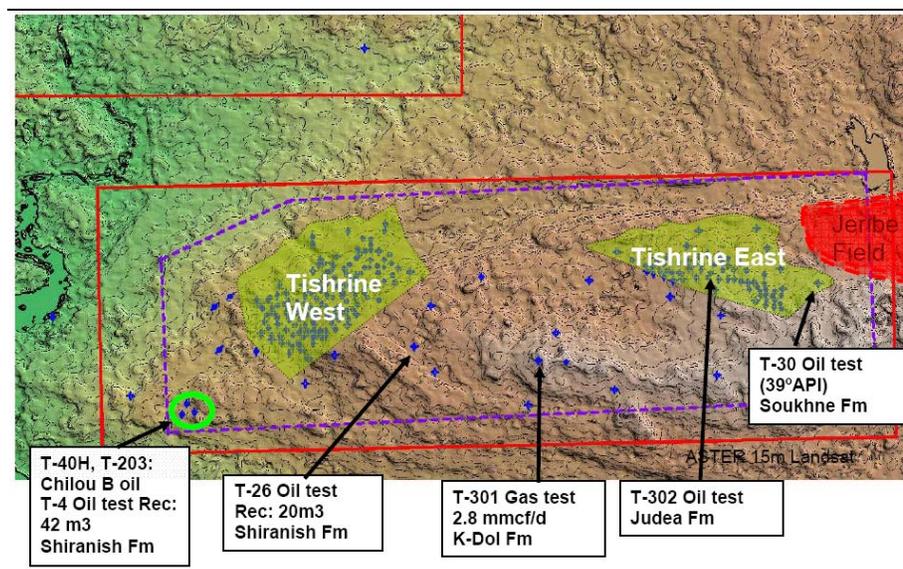
TYK commenced a thermal enhanced oil recovery pilot project in 2006. Thus far, the pilot project has yielded very encouraging results. Currently TYK is actively drilling development wells with three rigs.

**Geology**—The Tishrine field is located in northeast Syria some 15 kilometres west of the Iraqi border in the Sinjar sub-basin. Several medium to large-sized fields exist, which are generally associated with large anticlines and display significant fracturing systems, contributing to the productivity of the reservoirs.

There are six prospective oil bearing zones with depths varying from 500 to 2,000 metres. The main reservoir rock is generally limestone with low porosity (average 10%) and moderate matrix permeability, which is enhanced significantly in areas with extensive fracturing. The known oil bearing zones are the late Cretaceous Shiranish limestone, the Oligocene Chilou formation, the Eocene Jaddala formation and the Triassic Butmah formation.

Tishrine has been developed in two lobes. The eastern lobe comprises the Shiranish reservoir, and the western lobe comprises the Chilou and Jaddala reservoirs. Reservoir quality appears to be variable across the fields. This could have an adverse impact on well productivity and the recovery factor.

Figure 3: Tanganyika Oil—Tishrine block



Source: Company reports

**Under-saturated heavy oil**—The reservoirs typically have low pressure and contain relatively heavy oil (17-19° API), with sulphur content ranging from 1% to 5%. The reservoirs are generally under-pressured and under-saturated, meaning they have low-solution gas content. Combined with the fractured nature of the carbonate reservoirs, the enhanced oil recovery methods could be challenging. However, the pilot project has so far yielded encouraging results.

Under-saturated, under-pressured heavy oil combined with fracturing could presents challenges to EOR

The deeper Butmah and Kurra Chine formations (Triassic) contain medium-quality (30°+ API) discoveries. Tanganyika has identified several of these deeper prospects, and three exploration wells are planned in 2007.

**Production**—Current gross production is about 8,000 bbl/d of approximately 17° API gravity crude, including base production of about 6,000 bbl/d, which is 100% owned by the government. TYK has the rights to the incremental production in excess of base production.

Current production of about 8,000 bbl/d including the base level of ~6,000 bbl/d

Winter temperatures have had an adverse impact on production due to uninsulated oil gathering lines and a lack of oil heaters. The company is in the process of upgrading and modernizing production-gathering facilities.

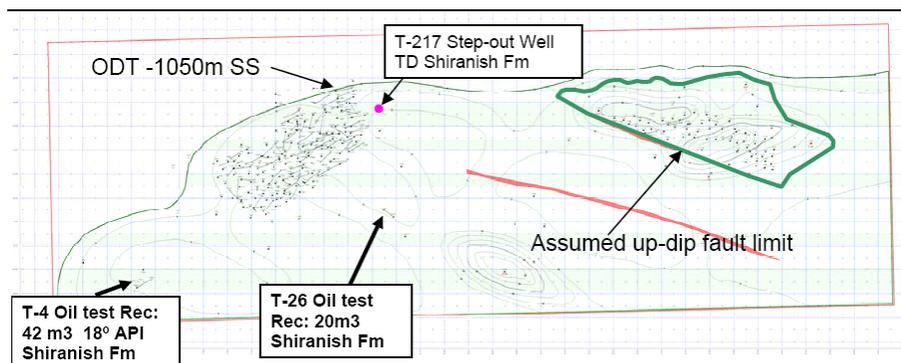
Oil from the two oil fields is gathered at the main facilities in West Tishrine before being transported via a 17 km long pipeline to the main Roumailan pipeline. To date 247 wells have been drilled, of which 110 are on production.

**Reserves and resources**—An independent study conducted by DeGolyer & MacNaughton (D&M) at year-end 2006 estimated 2P reserves of 400 MMbbls, and 3P reserves of 520 MMbbls.

Tanganyika has drilled several wells that tested oil outside of the existing 3P reserve boundaries recognized by D&M. In addition to what D&M has recognized, TYK has estimated that the additional resource potential of the block could be 13 billion barrels (original-oil-in-place). As depicted in Figure 4, the T-4 and T-26 wells, both of which have recovered oil during production tests, are well outside of the existing field delineation.

2P and 3P reserves of 400 MMbbls and 520 MMbbls respectively + 13 billion bbls of OOIP resource potential

Figure 4: Tanganyika Oil—Potential areas of field extension



Source: Company reports

While a significant resource potential is present, the key is to economically extract these resources. Hence, the EOR pilot and ongoing work-over well results are critical to convert these resources to reserves.

In addition to shallower heavy oil potential, the block offers light oil potential from deeper dolomite formations (Soukhne, Judea, and Kurrachine). TYK plans to drill 3 exploration wells into seismically identified prospects with light oil potential.

**Development of resources**—To date, Tanganyika has focused on improving the productivity of old wells. In 2005 and 2006, matrix acid stimulation and acid fracturing techniques were employed in 21 wells, raising production by approximately 40 bbl/d in each well, a net increase of 840 bbl/d across the whole field.

#### Sheikh Mansour

The Sheikh Mansour block includes two discoveries: the Sheikh Suleiman oil and gas field (1977), and the Sheikh Mansour oil field (1978). A major pipeline is located near the block area and transportation and utility infrastructure is excellent.

**The Sheikh Suleiman (24° API)**—The field is mapped over an area of 30 km<sup>2</sup> with a hydrocarbon column of 183 m, including a 70 m oil column and a 113 m gas cap. The reservoirs are found at shallow depths ranging from 575 m to 740 m. TYK plans to carry out appraisal drilling and extended production tests in 2007.

No current oil production but appraisal drilling and production tests are planned for 2007

**The Sheikh Mansour (24° API)**—The understanding of matrix porosity and permeability is key in the establishment of a commercial oil development from this field. The field is delineated by 6 wells, but has not been developed because of a lack of production processing facilities in the area. TYK plans to carry out appraisal drilling and extended production tests in 2007, following the completion of 3D seismic interpretation.

#### Oudeh Block

Tanganyika was awarded a 100% participating interest in Oudeh under a development and production-sharing contract signed in 2003. Tanganyika is the operator of the field until May 2008, after which it will operate the field jointly with SPC.

The block is located in the north eastern corner of the country on the Zagros fold belt, which extends further east into Iraq and Iran. The belt contains a number of large anticline features hosting prolific world class oil and gas fields.

The objective of the development contract, which has a term of 20 years with a provision for a five-year extension, is to increase oil recovery and crude oil production via application of enhanced oil recovery techniques. In May 2008, TYK has the option to extend the contract until May 2028, after which TYK has an option to extend the contract for an additional five years.

TYK has initiated facility upgrades to improve oil flow during the winter months.

**Geology**—The Oudeh Field lies within the Oudeh Block and is located in the Zagros Basin of Syria. The Zagros basin contains Syria's most prolific oil field, Suwaidiah.

The Oudeh field is a large anticline structure with several oil-bearing formations, including:

- The Shiranish Carbonates, containing heavy gravity (14° API) oil at an average depth of 2,000 m. The formation has moderate porosity and good permeability that is enhanced by fractures. The Shiranish reservoir will be the focus of the company's development activities.
- The Butmah and Kurachine carbonates, containing medium gravity oil at an average depth of 2,500 m. The Butmah reservoir contains mainly liquids-rich gas with a 10 m thick oil leg. The carbonate reservoirs have relatively low porosity (less than 10%) and moderate matrix permeability (less than 50 mD). Due to folding and faulting, the thick reservoir carbonates have good fracturing systems that could enhance the productivity of wells into these reservoirs.

**Reserves and resources**—At year-end 2006, D&M assigned reserves of 253 MMbbl and 389 MMbbl on a 2P and 3P basis respectively. Oudeh is estimated to contain 3.9 billion barrels of oil in place and, if fully developed, total production could reach a plateau of 30,000 bbl/d (according to a report prepared by Sproule in June 2003).

1P and 2P reserves of 253 MMbbls and 389 MMbbls respectively from 3.9 billion bbls OOIP

**Production**—Current gross production from Oudeh is approximately 2,750 bbl/d (including base production of 900 bbl/d). The majority of the increase is attributable to production from new producer wells in the Shiranish reservoir. At the end of 2006, 30 wells were on production.

Current production of 2,750 bbl/d including the base level of 900 bbl/d

Tanganyika has, free of charge, full access to the natural gas reserves in the contract area for use in enhanced oil recovery. However, the company does not have the right to sell the natural gas. Liquids recovered through production and/or recycling of gas will be treated as crude oil.

**Infrastructure**—Oil from the Oudeh field is being transported via a 57 km pipeline to the main Scotraco pipeline, which gathers all of the Syrian heavy oil for shipping to the Homs upgrader. From there, the oil is piped to the Tartus export terminal on the Mediterranean coast approximately 725 km from the Oudeh oil station.

The Scotraco pipeline has an estimated capacity of 300,000 bbl/d. Current estimated spare capacity is in excess of 100,000 bbl/d, which is available for future development and expansion.

#### Syrian royalties and taxes

The Tishrine and Sheikh Mansour blocks are governed under a single development and Production Sharing Contract (PSC). The terms for Oudeh are very similar, differing only in regards to cost recovery. The details of the PSCs are outlined below.

- **Royalty:** A 12.5% royalty is payable to the government after deduction of the base case production.
- **Cost recovery:** For Tishrine and Sheikh Mansour, the contractor can recover its costs from up to 48% of the incremental oil (after 12.5% royalty) produced in each calendar year. For Oudeh the maximum cost recovery is 70%. Costs exceeding the maximum recoverable may be carried forward to subsequent years without interest, until fully recovered. These terms are moderately favourable to other PSA terms in the region for two reasons; 1) these are heavy oil assets, which are low margin relative to light oil assets; 2) Syrian country risk is relatively higher and as such, the terms are designed to attract western capital and technology.

12.5% royalty

Fiscal terms are attractive

- **Profit petroleum:** Revenues remaining after the initial 12.5% royalty and cost recovery are split as 70% to the government of Syria and 30% to the contractor.
- **Income tax:** The government (SPC) pays income tax in full on behalf of the contractors from its share of profit petroleum.

Contractor retains 30% of profit oil

## Egypt

Tanganyika has the exploration rights in the 575,000 acre West Gharib concession. The block is located on the West Bank of the Gulf of Suez, adjacent to a number of producing oil fields, including Amer, Bakr, Ras Gharib, West Bakr, and Kareem.

Geologically the area is oil prone with small/mid size accumulations. The block is located on the western fringe of the basin where typical reservoirs are smaller in size (1-5 MMbbl).

Within the block itself, there are five discoveries: Hana, Hoshia, West Hoshia, Fadl and Rahmi. TYK retained a 70% participating interest in the producing Hana field, but only a 45% participating interest in all other fields.

5 discoveries, 45% WI except Hana where TYK has 70%

The Hana field was discovered and brought on stream in 1999. Tanganyika became operator in 2001 and has carried out a comprehensive development drilling and well work-over programme. The primary producing horizon in the Hana field is the Miocene Kareem-Markha formation, yielding 26° API crude. Although oil has been discovered in the Rudeis formation, no commercial volumes have been recovered to date.

The Hoshia and the Fadl fields were brought on stream in Q205 and Q305, respectively. The West Hoshia and Rahmi fields were recently placed on production.

The Hoshia-1 discovery well was drilled in the first quarter of 2005, testing 500 bbl/d of 16.5° API gravity oil from the Miocene Rudeis formation.

**Production and reserves**—Gross production from the block is approaching 2,500 bbl/d (1,400 net to TYK). Given natural declines and an increasing water cut from the Hana field, we believe production from West Garib is likely near its plateau level. Since future discoveries will be limited to relatively smaller fields, we believe production and reserve growth from the block is limited. We believe TYK will ultimately divest this asset as the Syrian assets are increasingly becoming the main focus for the company.

Net production of ~1,400 bbl/d, 2P reserves of 1.7 MMbbls

As of December 31, 2005 Tanganyika's working interest 2P reserves at West Gharib were 1.7 MMbbls.

Syria is the main focus of the company

Drilling and completion costs per well are approximately \$1.0 million and average operating costs in the region are less than \$3.00/bbl

**Exploration potential**—Despite 3 successes in early 2005, Tanganyika’s exploration performance has fallen short of expectations, largely due to lack of geological prospectivity of the region. While in our view there are opportunities for smaller discoveries, the likelihood of big finds (ie, >10 MMbbl) is remote.

**PSC fiscal terms**—Under the terms of the Production Sharing Contract (PSC), the contractor carries the exploration risk in the event that there is no commercial discovery. For commercial discoveries, the initial development is 20 years with an option to renew for an additional three consecutive, five-year extensions (35 years in total). The PSC terms allow the contractor to recover its costs out of 30% of gross production. Capital expenditures (exploration & development) and operating costs are recovered at 25% and 100% per year, respectively.

**Profit oil**—The remaining oil after cost recovery is called “profit oil”, which is split as demonstrated in Table 6.

**Table 6: Egyptian profit oil split**

Production (000 bbl/d)	Government share	Contractor share
< 5	70.0%	30.0%
5-10	72.5%	27.5%
10 - 15	75.0%	25.0%
15 - 25	77.5%	22.5%
25 - 50	80.0%	20.0%
50 - 100	82.5%	17.5%
> 100	85.0%	15.0%

Source: Company reports, Wood Mackenzie

## Reserves and resources

**Reserves** - At year-end 2006, Tanganyika’s working interest reserves were 175 MMbbl, 779 MMbbl, and 1,049 MMbbl on 1P, 2P, and 3P bases, respectively. Essentially all of the reserves are heavy oil (11-17° API) from its Syrian asset base. We expect the production performance of cyclic steam injection to have a material impact on future reserves. While we believe the in-place reserve estimates are reasonable, the recoverable volume has a large degree of uncertainty. This is mainly due to a lack of historical production data to reasonably estimate the recovery factor of in-place resources.

**1P, 2P and 3P reserves of 175 MMbbls, 779 MMbbls and 1,049 MMbbls respectively**

**Table 7: Tanganyika Oil—Independent reserves as per D&M at 31 December 2006**

	Gross WI	Net WI	Entitlement	NPV *	NPV/bbl
	Mbbl	Mbbl	%	US\$ million	US\$/bbl
<b>Proved</b>					
Producing	7,278	2,505	34%	40	\$ 5.50
Non-producing	2,028	1,024	50%	14	\$ 6.90
Undeveloped	166,057	86,953	52%	573	\$ 3.45
<b>Total Proved</b>	<b>175,363</b>	<b>90,482</b>	<b>52%</b>	<b>627</b>	<b>\$ 3.58</b>
Probable	603,408	331,164	55%	1,432	\$ 2.37
<b>Total proved plus probable</b>	<b>778,771</b>	<b>421,646</b>	<b>54%</b>	<b>2,059</b>	<b>\$ 2.64</b>
Possible	270,655	180,464	67%	1,065	\$ 3.93
<b>Total proved plus probable plus possible</b>	<b>1,049,426</b>	<b>602,110</b>	<b>57%</b>	<b>3,124</b>	<b>\$ 2.98</b>

\* 10% after tax

Source: Company reports

**Resources**—In-place resources are of sufficient size to make TYK a mid-size producer within the next few years. In total, the company estimates total original-oil-in-place resources of 20.7 billion bbls, comprised of 7.8 billion barrels of independently assessed 3P in-place-reserves and 12.9 billion barrels of internally estimated in-place-resources. D&M assigns a recovery factor of 13.3% to arrive at estimated recoverable 3P reserves of 1.05 billion barrels.

In-place OOIP resources of 20.7 billion bbls

**Table 8: Tanganyika Oil—Oil-in-place resources from Syrian assets**

(millions of barrels)	D&M Report	Additional Resources *	Total Resources
Oudeh	3,920		3,920
Tishrine	3,451	12,765	16,216
Sheikh Mansour / Sheikh Suliman	<u>424</u>	<u>120</u>	<u>544</u>
<b>Total</b>	7,795	12,885	20,680

\* Tanganyika Internal estimates

Source: Company reports

## Enhanced oil recovery and new technology

**Work-overs**—In 2006, Tanganyika performed work-overs on several old wells in the West Tishrine field. Activities included removing liners, stimulation (acid wash), and higher rate artificial lifts. As result of the work-overs, well flow rates increased, on average, by 245% to 893 bbl/d from 259 bbl/d. While the old wells have the potential for improvement, the key takeaway from the 2006 work-over program is that with modern technology, both well productivity and recovery improves.

**Table 9: Tanganyika Oil—Work-over results**

Well	Daily Production Rate (bbl/d)		Increase
	Before	After (Stabilized)	
WT-12	260	1030	296%
WT-29	220	820	273%
WT-39	180	654	263%
WT-117	<u>377</u>	<u>1069</u>	<u>184%</u>
<b>Total</b>	259	893.25	245%

Source: Company reports

**Cyclic steam stimulation (CSS) – See detail in appendix**—Tanganyika has conducted two cyclic steam injection pilot projects, both of which have yielded very encouraging results. Each cycle consists of 30 days of steam injection, followed by a two-day soaking, which is then followed by 120 days of production. The pilot project results have had a positive impact on well productivity and recovery rates. CSS has resulted in a 2.3 times increase in production per well (from 120 bbl/d to 276 bbl/d).

EOR has yielded very encouraging results thus far

**Table 10: Tanganyika Oil—EOR performance (cyclic steam injection)**

Well >>>	OD-147	OD-146	OD-148	WT-207	WT-208	Average
Slug size (bcwe)	15,000	30,000	45,000	11,000	32,000	26,600
Avg injection rate (bcwe/d)	1,251	1,292	1,357	838	966	1,141
Maximum BHT (°C)	235	206	244	206	267	232
Steam quality	60%	78%	80%	65%	80%	73%
Depth (TVD @ casing shoe)	1545	1561	1568	684	817	1,235
Steam-oil-ratio	7.49	3.45	3.57	4.73	3.45	4.5
Average cold production (bbl/d)	118	163	132	83	102	120
Average hot production (bbl/d)	167	374	380	177	280	276
EOR impact (times cold bbl/d)	1.4 x	2.3 x	2.9 x	2.1 x	2.7 x	2.3 x

Note that TYK has free access to natural gas in the area and as such, SOR is a non-factor to the economics of the project.

Source: Company reports, UBS

**3D seismic and horizontal drilling technology**—As demonstrated by the work-over program in 2006, new technologies (high rate pumps) can help to increase production rates and recovery. While horizontal wells are expected to increase production and recovery rates, 3D seismic has been instrumental in placing well bores in the right part of the reservoir and expanding the field boundaries containing resource-rich areas within the blocks. We believe Tanganyika's future success will ultimately be based on how it efficiently deploys the capital and utilizes new technologies. Geological risk is relatively low as the resource has been densely drilled and mapped.

## Recommendation

We are initiating coverage of Tanganyika Oil with a Buy 2 rating and a 12 month target price of C\$30. Our target is based on 0.66x our risk-adjusted NAV estimate of C\$45.15.

**Buy 2, C\$30 price target**

We believe that Tanganyika will trade at a discount to NAV for several reasons including geopolitical risk (Syria is currently under US Government embargo), liquidity risk, its focus on heavy oil and because its operations are essentially based in a single country. Given TYK's existing resources, despite a heavy discount, the upside is tremendous from these assets.

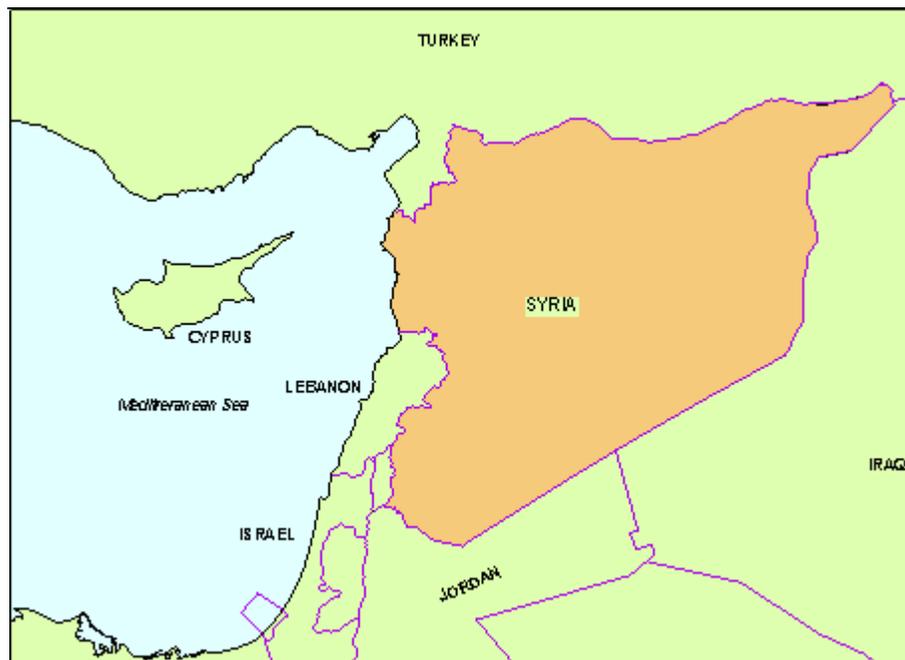
Using a long-term oil price of \$51/bbl WTI, we calculate a NAV per share of C\$45.15 on a risk-adjusted basis, and C\$87.75 on a non-adjusted basis. Compared to the current share price of C\$20, we see significant upside given TYK's resources are well defined by recent well results and new 3D seismic mapping. In our view, the real driver for the stock will be the ongoing performance of the EOR pilot project, which has so far exceeded management's expectation.

**TYK trades at a substantial discount to risked and unrisked NAV**

We assign a predictability level of 2 to reflect the sensitivity and speculative nature of our financial forecasts and operational assumptions which may differ significantly from actual results.

# Syria: Country summary

Figure 5: Syria and region



Source: Wood Mackenzie

## Production

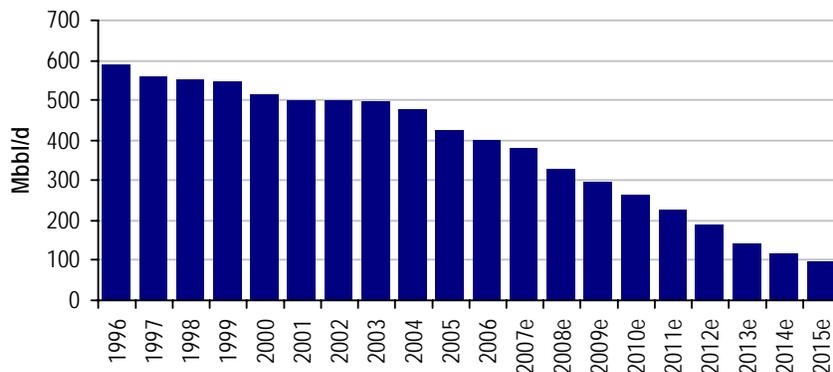
Oil production in Syria commenced in 1968 and reached plateau production in the late 1990s. From 2000 to 2003, production appeared to stabilize, but has since begun to decline. Water production and natural declines from the maturing fields are the main cause of the drop in output. The rate of decline may be slowed if EOR projects on the country’s larger fields are successful. However, in the absence of further exploration success, the production declines are expected to continue. Syria is expected to become a net importer of oil by 2011.

Table 11: Syrian country facts

Liquid reserves	1.07 bln bbls (2006)
Liquid production	399 Mbb/d (2006)
Liquid R/P	7.4 years
Gas reserves	4.51 tcf (2006)
Gas production	0.67 bcf/d (2006)
Gas R/P	18.3 years

Source: Wood Mackenzie

Chart 1: Syrian liquids production – historical and forecast

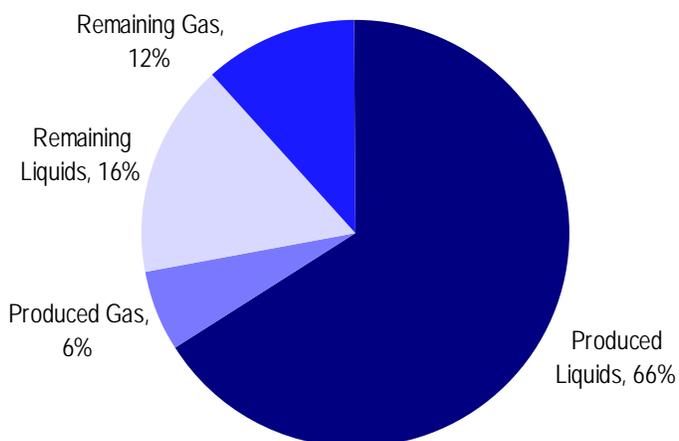


Source: Wood Mackenzie

## Reserves

As demonstrated in Chart 2, the majority of Syria's initial reserves have been exploited. Approximately 72% of initial equivalent reserves or 80% of initial liquid reserves have been produced. The future of Syrian oil production lies in enhanced recovery techniques as operators attempt to breathe new life into ageing fields.

Chart 2: Syrian reserves (initial reserves = 6,577 MMboe)



Source: Wood Mackenzie

## Geology

The onshore portion of Syria is located on the northern edge of the Arabian plate, immediately adjacent to the boundaries with the Eurasian and Iranian plates.

## Crude oil pricing

Syrian crude is marketed and exported by the state-owned Sytrol company. The main export blend is Syrian Light, which is a 37-37.6° API blend of oils derived mainly from oil fields in east-central Syria. Most of the heavier crudes are refined within Syria and only a limited volume (between 30,000-50,000 bbl/d) of the 24.2-24.8° API Suwaidiyah blend (from the heavy oil fields of northeast Syria) are exported. Both Syrian Light and Heavy are priced as differentials to dated Brent crude, with monthly adjustments.

## Infrastructure

The most significant oil pipeline in Syria is the former Iraq Petroleum Company (IPC) system (SCOT pipeline I), which extends from the Kirkuk oil field in northern Iraq, via the Homs refinery in central Syria, to the Baniyas export terminal on the Mediterranean coast. The Syrian branch of the system was nationalised in June 1972 and operatorship was transferred to the Syrian Company for Oil Transport (SCOT).

Heavy oil from the SPC operated fields is transported via a 663 km, 18/20/28-inch pipeline to Homs and then on to the Tartus terminal on the Mediterranean coast for export. A short spur line links the pipeline with the Homs refinery. The pipeline has five pumping stations and had an original capacity of 250,000 bbl/d in 1968. The system, as with all regional pipelines in Syria, is owned 100% and operated by the state-owned Syrian Company for Oil Transport (SCOT).

#### Homs refinery

The Homs refinery is located in west-central Syria and is the oldest refinery in Syria. Its current capacity is 107,000 bbl/d. Initially, the refinery was designed to process a combination of heavy (24° API) crude from the Suwaidiyah oil field and lighter crude from the oil fields in neighbouring Iraq. Following the post-war re-construction and the closure of the Iraqi export system (in 1982), the refinery was expanded in stages and adjusted to use both the heavier Syrian crudes from the north-eastern fields and the lighter oils produced in the AFPC and DEZPC contract areas in east-central Syria.

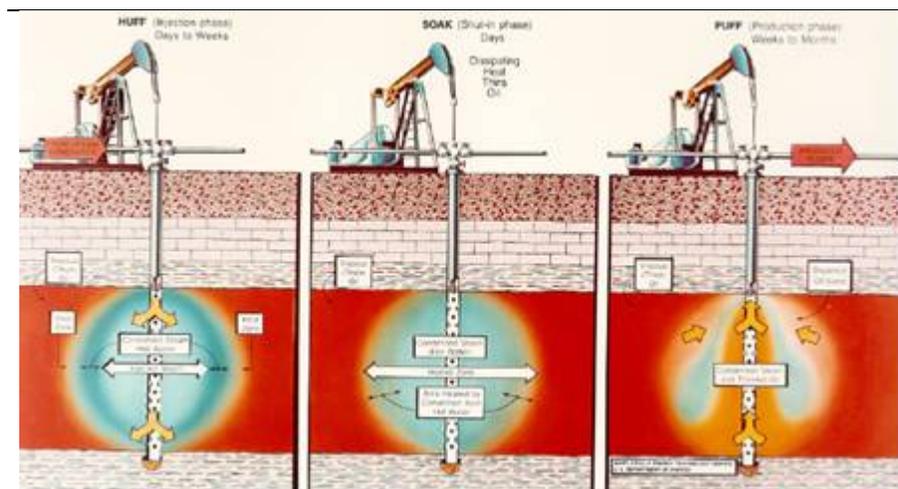
## Appendix - Enhanced Oil Recovery (EOR)

Enhanced Oil Recovery (EOR) or tertiary recovery is a generic term for techniques to improve the ultimate recoverable volume and production flow rate of oil from reservoirs. Its purpose is not only to restore formation pressure, but also to improve oil displacement or fluid flow in the reservoir by using sophisticated techniques that alter the original properties of the oil within the reservoir. Using EOR, potentially 30 to 60% of the reservoir's original oil can be extracted as opposed to 20-40% using primary and secondary recovery. The three major types of enhanced oil recovery operations are chemical flooding (alkaline flooding or micellar-polymer flooding), miscible displacement (CO<sub>2</sub> injection or hydrocarbon injection), and thermal recovery (steam injection or SAGD, in-situ combustion). The optimal application of each EOR technique depends on reservoir properties such as temperature, pressure, depth, net pay, permeability, residual oil and water saturations, porosity and fluid properties such as API gravity and viscosity.

### Cyclic Steam Stimulation (CSS)

Cyclic Steam Stimulation is applied to heavy-oil reservoirs to enhance oil recovery. Steam is injected into the formation to increase reservoir pressure and reduce the viscosity of the oil (heated oil becomes more mobile and easily moves through the formation to the wells). To utilize CSS, a predetermined amount of steam is injected into wells specifically drilled for injection purposes (Injection phase). These wells are then shut-in to allow the steam to heat or "soak" the reservoir around the well. After sufficient time has elapsed to allow adequate heating, the injection wells are brought on production until the heat is dissipated with the produced fluids. This cycle of inject-soak-and-produce, may be repeated until the response becomes marginal due to declining natural reservoir pressure and increased water production.

Figure 6:Cyclic Steam Stimulation



Source: National Energy Technology Laboratory

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## ■ Tanganyika Oil Company Ltd

Tanganyika Oil is an international junior oil and gas company headquartered in Calgary, Alberta, Canada. The company has producing properties in Syria and Egypt and is focused on Enhanced Oil Recovery through Cyclic Steam Stimulation. The company trades on both the Toronto and Stockholm stock exchanges.

## ■ Statement of Risk

Exploration and production companies are subject to a variety of risks, such as volatile movements in oil and natural gas prices, as well as operational, financial, geological, political, security and meteorological issues. One or all these risks could have the potential to significantly impact company performance.

Tanganyika Oil has specific risks aside from those mentioned above such as asset and geographical concentration as 100% of production is based in Egypt and Syria.

## ■ Analyst Certification

Each research analyst primarily responsible for the content of this research report, in whole or in part, certifies that with respect to each security or issuer that the analyst covered in this report: (1) all of the views expressed accurately reflect his or her personal views about those securities or issuers; and (2) no part of his or her compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by that research analyst in the research report.

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### UBS Investment Research: Global Equity Ratings Definitions and Allocations

UBS rating	Definition	UBS rating	Definition	Rating category	Coverage <sup>1</sup>	IB services <sup>2</sup>
<b>Buy 1</b>	FSR is > 6% above the MRA, higher degree of predictability	<b>Buy 2</b>	FSR is > 6% above the MRA, lower degree of predictability	<b>Buy</b>	47%	37%
<b>Neutral 1</b>	FSR is between -6% and 6% of the MRA, higher degree of predictability	<b>Neutral 2</b>	FSR is between -6% and 6% of the MRA, lower degree of predictability	<b>Hold/Neutral</b>	42%	36%
<b>Reduce 1</b>	FSR is > 6% below the MRA, higher degree of predictability	<b>Reduce 2</b>	FSR is > 6% below the MRA, lower degree of predictability	<b>Sell</b>	12%	28%

1: Percentage of companies under coverage globally within this rating category.

2: Percentage of companies within this rating category for which investment banking (IB) services were provided within the past 12 months.

Source: UBS. Ratings allocations are as of 31 March 2007.

### KEY DEFINITIONS

**Forecast Stock Return (FSR)** is defined as expected percentage price appreciation plus gross dividend yield over the next 12 months.

**Market Return Assumption (MRA)** is defined as the one-year local market interest rate plus 5% (a proxy for, and not a forecast of, the equity risk premium).

**Predictability Level** The predictability level indicates an analyst's conviction in the FSR. A predictability level of '1' means that the analyst's estimate of FSR is in the middle of a narrower, or smaller, range of possibilities. A predictability level of '2' means that the analyst's estimate of FSR is in the middle of a broader, or larger, range of possibilities.

**Under Review (UR)** Stocks may be flagged as UR by the analyst, indicating that the stock's price target and/or rating are subject to possible change in the near term, usually in response to an event that may affect the investment case or valuation.

### EXCEPTIONS AND SPECIAL CASES

**US Closed-End Fund ratings and definitions are:** Buy: Higher stability of principal and higher stability of dividends; Neutral: Potential loss of principal, stability of dividend; Reduce: High potential for loss of principal and dividend risk.

**UK and European Investment Fund ratings and definitions are:** Buy: Positive on factors such as structure, management, performance record, discount; Neutral: Neutral on factors such as structure, management, performance record, discount; Reduce: Negative on factors such as structure, management, performance record, discount.

**Core Banding Exceptions (CBE):** Exceptions to the standard +/-6% bands may be granted by the Investment Review Committee (IRC). Factors considered by the IRC include the stock's volatility and the credit spread of the respective company's debt. As a result, stocks deemed to be very high or low risk may be subject to higher or lower bands as they relate to the rating. When such exceptions apply, they will be identified in the Companies Mentioned or Company Disclosure table in the relevant research piece.

## Companies mentioned

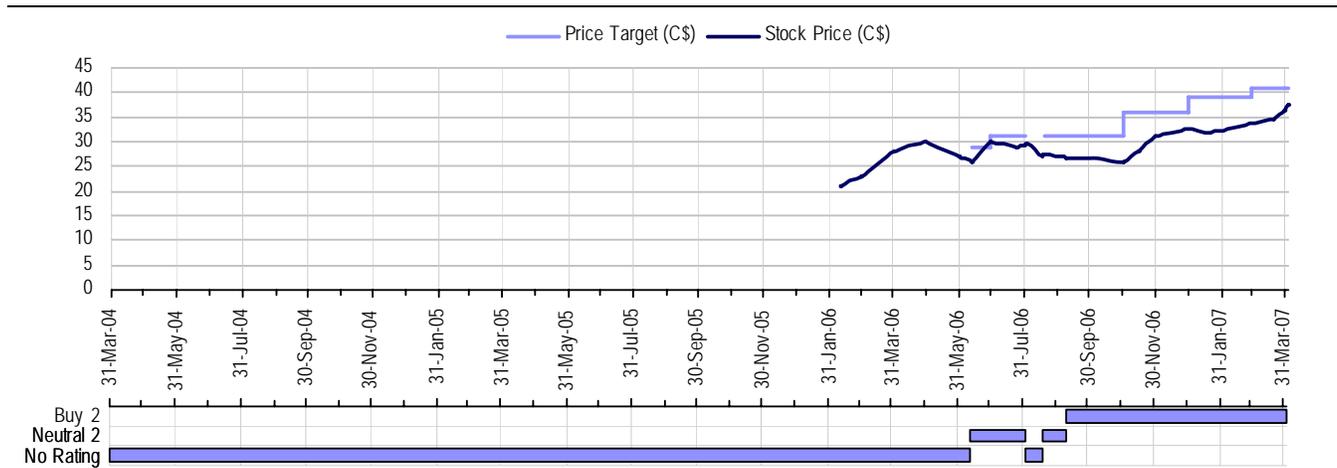
Company Name	Reuters	Rating	Price	Price date/time
<b>Addax Petroleum</b> <sup>2b,4</sup>	AXC.TO	Buy 2	C\$37.49	03 Apr 2007 19:35 EDT
<b>Calvalley</b> <sup>2a,4,13,20</sup>	CVIa.TO	Buy 2 (CBE)	C\$6.62	03 Apr 2007 19:35 EDT
<b>Niko Resources</b> <sup>2b,4,5</sup>	NKO.TO	Neutral 2	C\$84.00	03 Apr 2007 19:35 EDT
<b>Tanganyika Oil</b> <sup>20</sup>	TYK.V	Buy 2 (CBE)	C\$20.00	03 Apr 2007 19:35 EDT
<b>TransGlobe Energy</b> <sup>16</sup>	TGA.A	Buy 2	US\$3.99	03 Apr 2007 19:35 EDT

Source: UBS. EDT: Eastern daylight time.

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The analyst responsible for this report has reviewed the material operations of the issuer and/or met with senior management. Unless otherwise indicated, please refer to the Valuation and Risk sections within the body of this report.

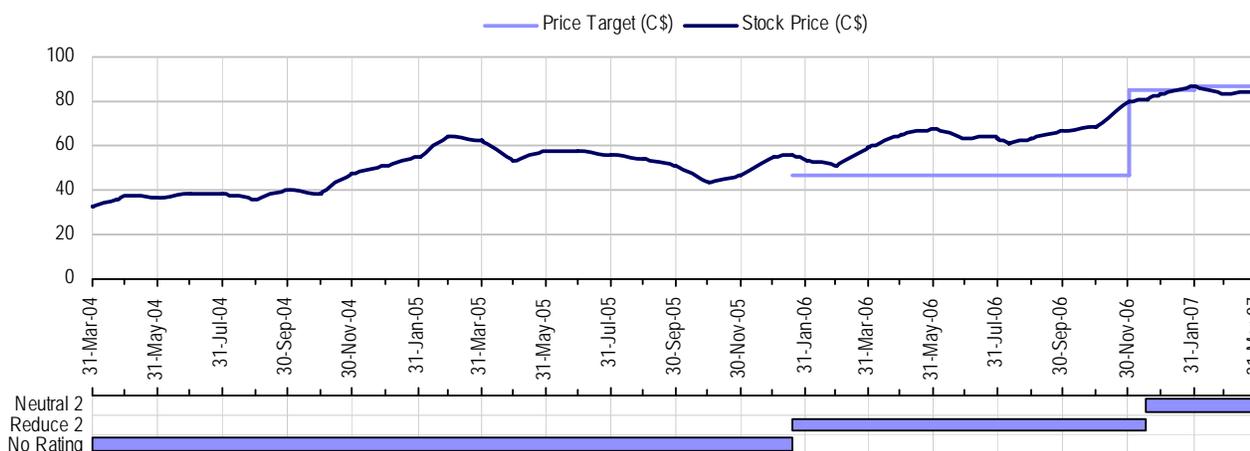
## Addax Petroleum (C\$)



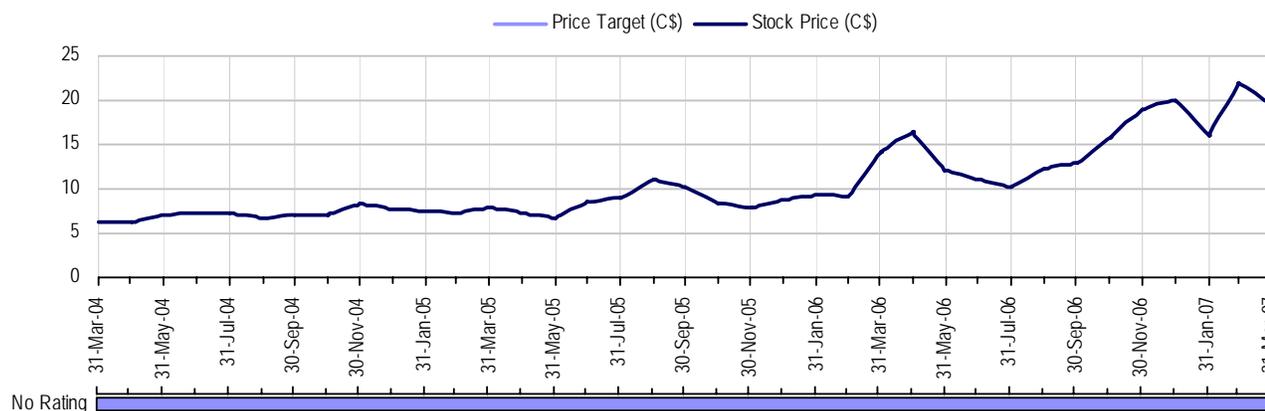
### Calvalley Petroleum Inc. (C\$)



### Niko Resources (C\$)



### Tanganyika Oil Company Ltd (C\$)



TransGlobe Energy Corporation (US\$)



Source: UBS; as of 3 April 2007.

Note: On September 9, 2006, UBS adopted new percentage band criteria for its rating system. (See 'UBS Investment Research: Global Equity Ratings Definitions and Allocations' table for details). Between October 13, 2003 and September 9, 2006 the percentage band criteria used in the rating system was 10%. Prior to October 13, 2003, the UBS ratings and their definitions were: Buy 1: Excess return potential >15%, smaller range around price target; Buy 2: Excess return potential >15%, larger range around price target; Neutral 1: Excess return potential between -15% and 15%, smaller range around price target; Neutral 2: Excess return potential between -15% and 15%, larger range around price target; Reduce 1: Excess return potential < -15%, smaller range around price target; Reduce 2: Excess return potential < -15%, larger range around price target. Excess return is defined as the difference between the FSR and the one-year local market interest rate.

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